

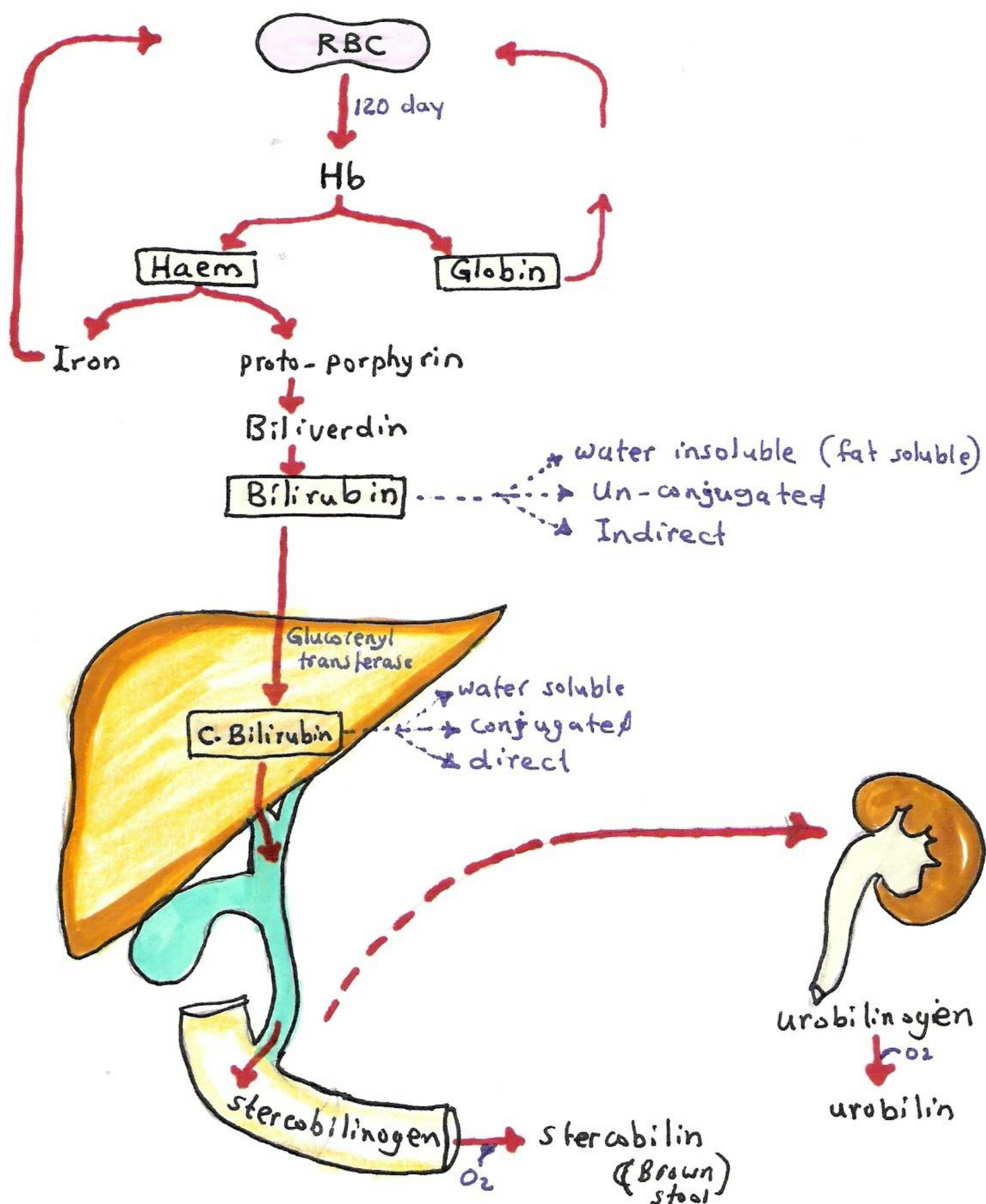
THE JAUNDICE



* Definition :-

- It is the yellowish discoloration of the tissue & the sclera, occurs if serum bilirubin $> 3 \text{ mg\%}$ (Normal $< 1 \text{ mg\%}$) (from 1-3 mg% called subclinical jaundice).

* Bilirubin metabolism :-



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* Classification of Jaundice :-

- (I) Prehepatic :- (hemolytic jaundice).
 due to ↑ destruction of RBC as hemolytic dis, Gilbert's syndrome
- (II) Hepatic :- (hepatocellular jaundice).
 due to liver disease as: hepatitis, cirrhosis, Wilson's dis. etc
- (III) Post-hepatic :- (obstructive = surgical jaundice).
 due to obstruction of biliary tract as stone, tumour, ...etc

Obstructive jaundice

* Causes :-

" OJ "

(I) Intrahepatic :- OJ

e.g :- liver tumour, hepatitis, alcohol, cirrhosis, 1st sclerosing cholangitis.

(II) Extra-hepatic:

- ① Lumen :- stone (choledocholithiasis), blood clots, parasite.
- ② Wall :- cong. biliary atresia, traumatic stricture, inflammatory stricture (sclerosing cholangitis), neoplastic stricture (cholangio-carcinoma), choledochal cyst
- ③ Outside :- cancer head of pancreas, periampullar carcinoma, LN enlargement

Commonest causes are stone (calculi) & Ca. head pancreas (Malignant)

* Pathogenesis :- due to obstruction :-

- ① Conjugated bilirubin not reaching intestine causing :- Pale stool (clay)
- ② bile salts not reaching intestine causing ③ defect absorption of vit A.K.E.D (fat soluble) → steatorrhoea, ↓ vit K "bleeding"
- ④ defect in bacterostatic function of bile salt → ↑ fermentation which → offensive bulky stool.
- ③ conjugated bilirubin regurgitate to blood → urine → Dark urine (tea-like)
- ④ bile salts increase in blood → itching (irritate nerve ending)
frothy urine.
 • ↓ HR

* Clinical Picture :- of O.J

- according to cause (H/o stone, s/s of malignancy, ... etc)
 - Ca head of pancreas :- suggested by : old, male, Painless deep jaundice, gradual onset, Palpable GB "Courvoisier's law"
 - Stone (CBD stone) :- suggested by : middle age, female, Pain (Rt hypoch. referred to Rt shoulder), sudden onset.
- s/s of jaundice :-
 - Pale "clay", offensive, bulky stool, steatorrhea,
 - Dark "tea-like", frothy urine
 - yellow discoloration, itching, bradycardia,

- [NB]** - Charcot's triad :- (① Pain, ② Jaundice, ③ fever & rigor).
- Reynold's Pentad :- (Charcot's triad + ④ Mental confusion, ⑤ shock).
 - Courvoisier law :- In the presence of a palpable GB, painless jaundice the cause unlikely to be GBS
 - in calculous O.J (GBS) :- GB is contracted & non palpable in 80% by cholecystitis, but in 20% dilated as in mucocele, pyocele.
 - in Malignant O.J (Ca. head pancreas) :- GB is dilated & healthy in 98%, but in 2% not dilated by associated cholecystitis, cholecystectomy

* Investigation :-

- To prove jaundice :- $\rightarrow$ serum bilirubin ($\uparrow$)
- To know type of J. :- $\rightarrow$ $\uparrow$ direct bilirubin (conjugated) $\rightarrow$ O.J (also stool analysis (clay), urine (tea like)), blood picture $\rightarrow$ hemolytic anemia
- To know cause of J. :- $\rightarrow$ USS (GBS, dilated CBD, ... etc). MRCP. ERCP. CT
- To assess liver function & effect of J. :- $\rightarrow$ LFT (GOT, GPT, ALP, Phosph) u/e/c, (PT, PTT, INR) $\rightarrow$ bleeding tendency
- CT & MRI may be needed (Ca. head of pancreas). ERCP diagnostic therapy in CBD stone

* Treatment of O.J. ::

* (A) Initial management:

- correct fluid, electrolyte disturbance, input/output chart
- Control infections:- blood culture, antibiotics
- correct clotting dysfunction:- Vit K (IV), fresh blood
- Nutritional support.
- Protect against liver failure (hepato-renal shutdown) by $\uparrow$ glucose intake, lactulose, antibiotic (ascending cholangitis) and I.V mannitol.

* (B) Secondary management:

- treat underlying cause (see ttt of stone & tumour).

* Complications ::

1. hepato-renal shutdown (failure), hepatic failure
2. Sepsis due to ascending cholangitis.
3. Coagulation defect.
4. Stress ulcer.

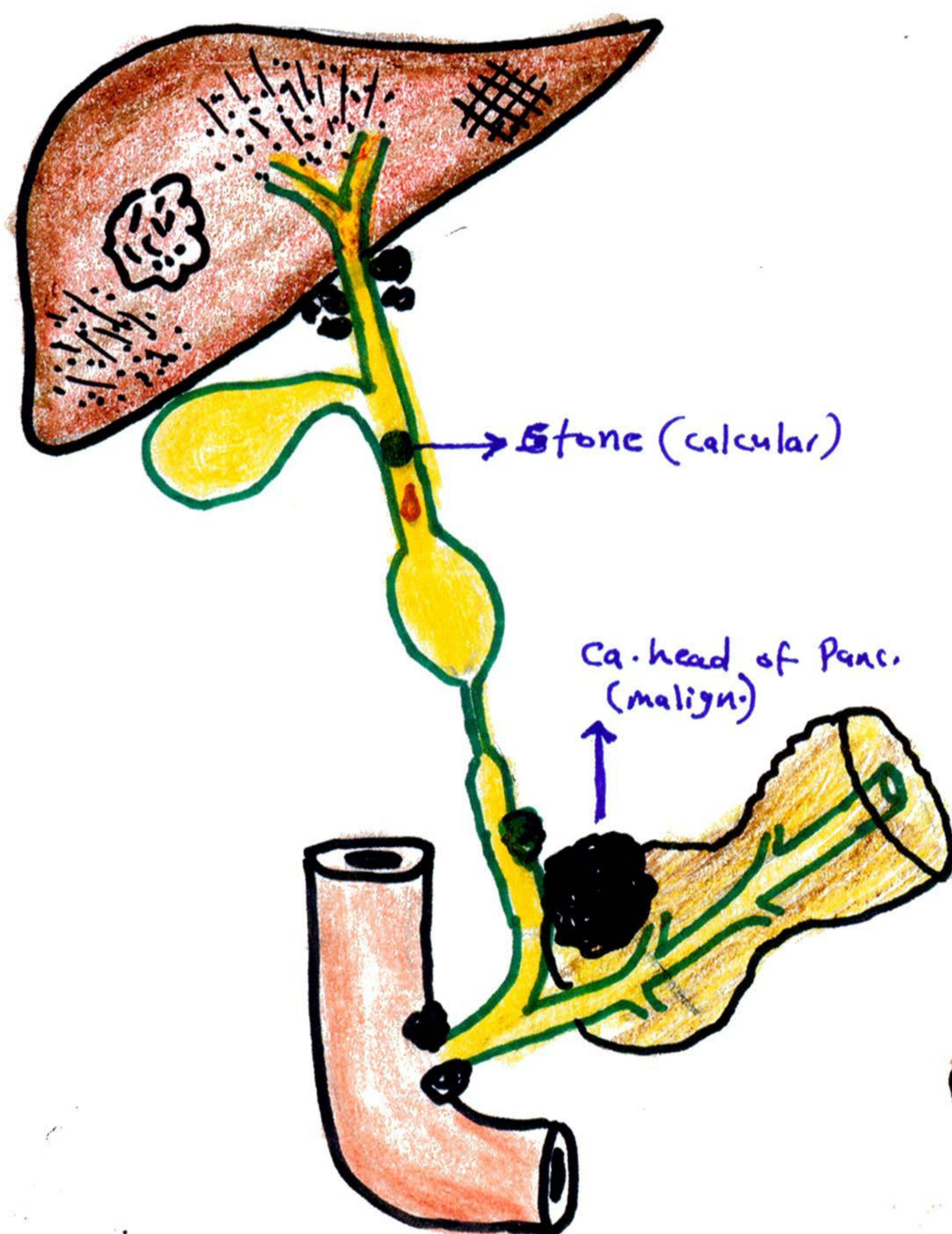
* Prognosis ::

- Bad prognostic signs are ::
 - age > 65 yrs
 - $\uparrow$ serum urea.
 - $\uparrow$ s. bilirubin > 10 mg %.
 - Multiorgan failure, sepsis
 - Malignant disease.

NOTES :

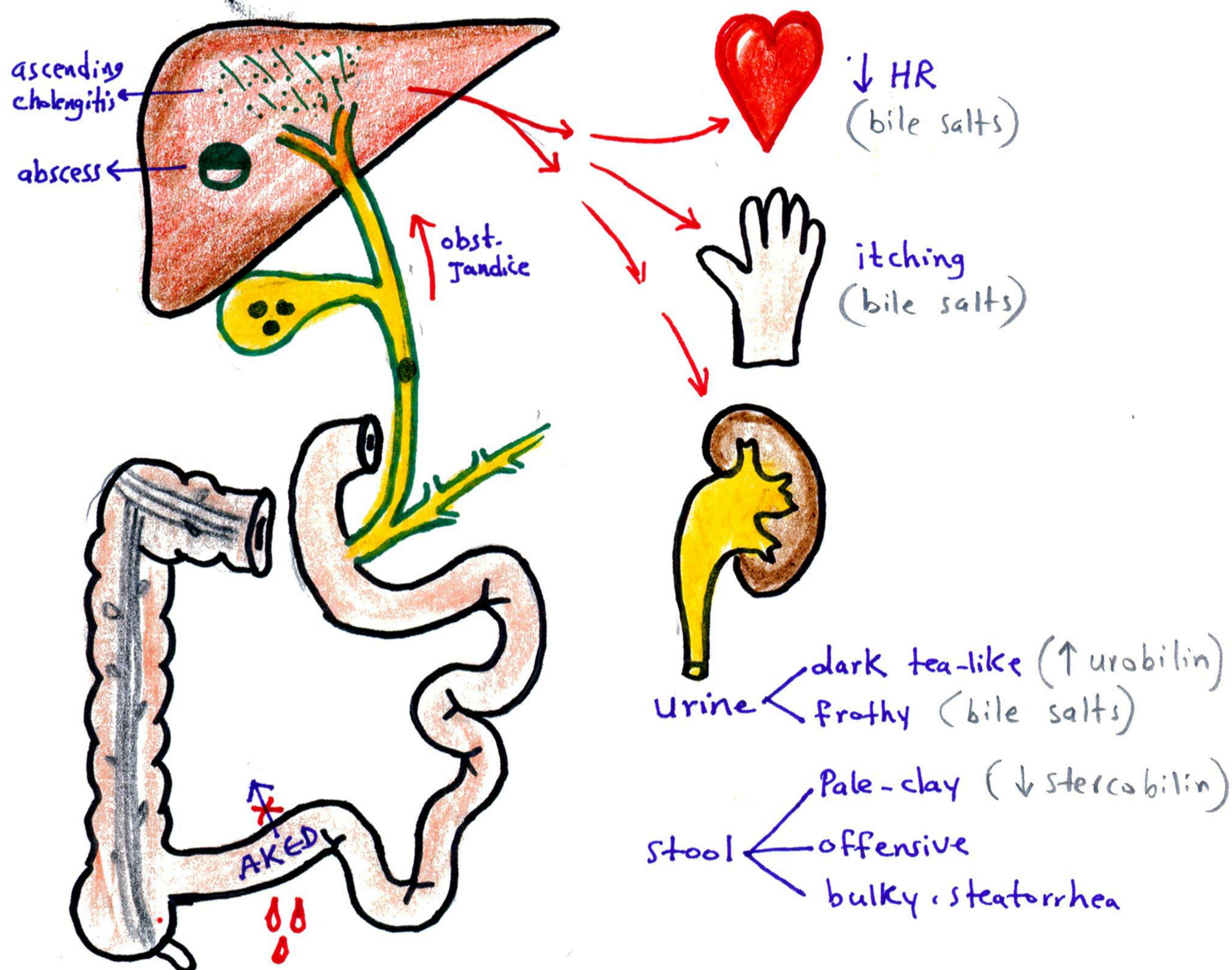
- Liver is the largest organ in abdomen wt $1\frac{1}{2}$ kg.
- Liver is essential in - storage, detoxification
 - synthesis (ptn, lipid, enz., clotting F)
- hepatic veins support the liver.
- ▢ portal triad are - portal vein, hepatic artery & CHD.
- ▢ portal vein carries 50% of blood from intestine to liver.
- ▢ about 70% of blood coming to liver is from portal vein & 30% from hepatic artery.
- but oxygen delivered to liver is 50% from portal vein and 50% from hepatic artery.

JAUNDICE



Causes of Jaundice

- ① Prehepatic (hemolytic):
 - hemolysis, Gilbert's dis.
- ② hepatic (hepatocellular):
 - hepatitis, cirrhosis, cholangitis, tumours
- ③ Post hepatic (surgical):
 - [a] lumen:- stone, blood clot, parasites.
 - [b] wall:- cholodochal cyst atresia, stricture, tumour.
 - [c] outside:- cancer head of pancrease, LN, periampullar cancer







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